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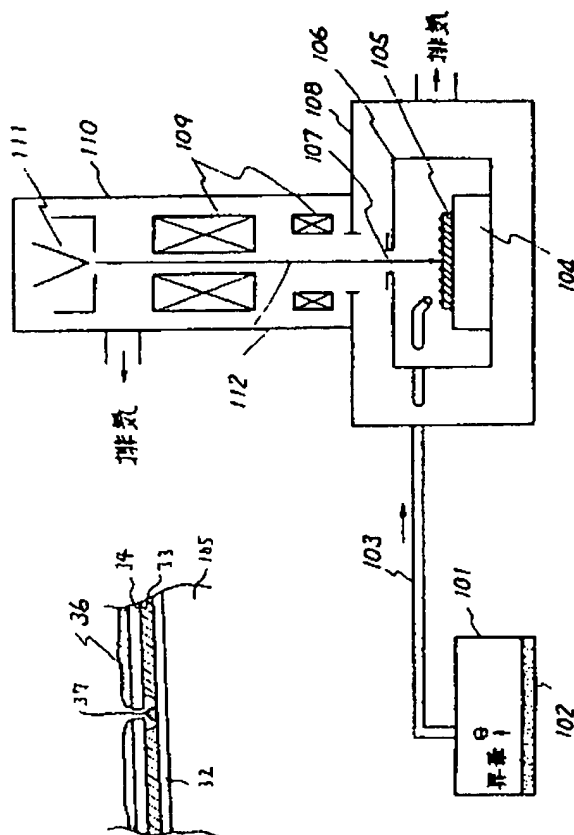
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#### (54) FORMATION OF MICROFINE PATTERN

(57) Abstract:

**PURPOSE:** To form a microfine pattern without being affected by the spreading of electrons due to scattering by etching a thin-film while using a high-molecular film consisting of a fluoride easy to be volatilized through the projection of electron beams as a resist.

**CONSTITUTION:** CF<sub>4</sub>, CHF<sub>3</sub>, etc. required for a high-molecular reaction in a reaction vessel 106 are diluted and forwarded into XeF<sub>2</sub> from an XeF<sub>2</sub> supply section 101. When the molecules of C and F adsorbed onto a substrate 105 are irradiated with electron beams 112 and ionized, and brought to a microplasma state, a high-molecular film composed of F and C changed into high molecules is formed on the substrate. When the high-molecular film 34 is evaporated by electron beams with a microfine diameter under an ultra-high vacuum, a pattern in approximately the same extent as the diameter of electron beams is formed. For example, a polysilicon thin-film 33 is etched in an atmospheric gas consisting of XeF<sub>2</sub> to shape the overhang of the high-molecular thin-film 34, a metallic film or semiconductor film 36 is evaporated, and the pattern 37 is formed on the substrate 105.



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